

CLAIMS:

1. A method of reducing the inhalation of airborne/respirable particles or droplets having a diameter of less than 10 micrometres, produced by spraying liquid droplets from a spray device, which method comprises imparting a unipolar charge to the liquid droplets by double layer charging during the spraying of the droplets from a spray device, the unipolar charge being at a level such that the droplets have a charge to mass ratio of at least $\pm 1 \times 10^{-4}$ C/kg, whereby at least 10% by volume of the airborne respirable particles or droplets having a diameter of less than 10 micrometres in the vicinity of the mouth, nose or upper respiratory tract do not enter the lungs.

2. A method as claimed in claim 1 wherein at least 25% by volume of the airborne respirable particles or droplets having a diameter of less than 10 micrometres in the vicinity of the mouth, nose or upper respiratory tract do not enter the lungs.

3. A method as claimed in claim 1 wherein at least 40% by volume of the airborne respirable particles or droplets having a diameter of less than 10 micrometres in the vicinity of the mouth, nose or upper respiratory tract do not enter the lungs.

4. A method as claimed in claim 1 wherein at least 75% by volume of the airborne respirable

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particles or droplets having a diameter of less than 10 micrometres in the vicinity of the mouth, nose or upper respiratory tract do not enter the lungs.

5 5. A method as claimed in any one of the preceding claims in which the spray device is an aerosol spray device.

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10 6. A method as claimed in any one of the preceding claims in which the spray device contains an emulsion.

15 7. A method as claimed in any one of the preceding claims in which the liquid droplets have a size in the range of from 5 to 100 micrometres.

20 8. A method as claimed in any one of the preceding claims in which the spray device contains a composition comprising an oil phase, an aqueous phase, a surfactant and a propellant.

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25 9. A method as claimed in claim 8 wherein the oil phase includes a C₉ - C₁₂ hydrocarbon.

10 10. A method as claimed in claim 9 wherein the C₉ - C₁₂ hydrocarbon is present in the composition in an amount of from 2 to 10% w/w.

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30 11. A method as claimed in any one of claims 8 to 10 wherein the surfactant is glyceryl oleate or a polyglycerol oleate.

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12. A method as claimed in any one of claims 8 to 11 wherein the surfactant is present in the composition in an amount of from 0.1 to 1.0% w/w.

5 13. A method as claimed in any one of claims 8 to 12 wherein the propellant is liquified petroleum gas.

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10 14. A method as claimed in claim 13 wherein the propellant is present in the composition in an amount of from 20 to 50% w/w.

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15 15. A method as claimed in any one of the preceding claims wherein the unipolar charge is imparted to the liquid droplets solely by the interaction between the liquid and the spray device, without any charge being imparted thereto from an internal or external charge inducing device.

20 16. A method as claimed in claim 15 wherein the charge to mass ratio of at least $\pm 1 \times 10^{-4}$ C/kg is imparted to the liquid droplets as a result of the use of an aerosol spray device with at least one of the features of the material of the actuator, the size and
25 shape of the orifice of the actuator, the diameter of the dip tube, the characteristics of the valve and the formulation of the composition contained within the aerosol spray device being chosen in order to achieve the said droplet charge to mass ratio by double layer
30 charging imparting the unipolar charge to the droplets during the actual spraying of the liquid droplets from

the orifice of the aerosol spray device.

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1. The present invention relates to a method of producing a spray of particles from a liquid or solid material, and to a device for carrying out the method.